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American Vegetable Grower

SEPTEMBER • 1957

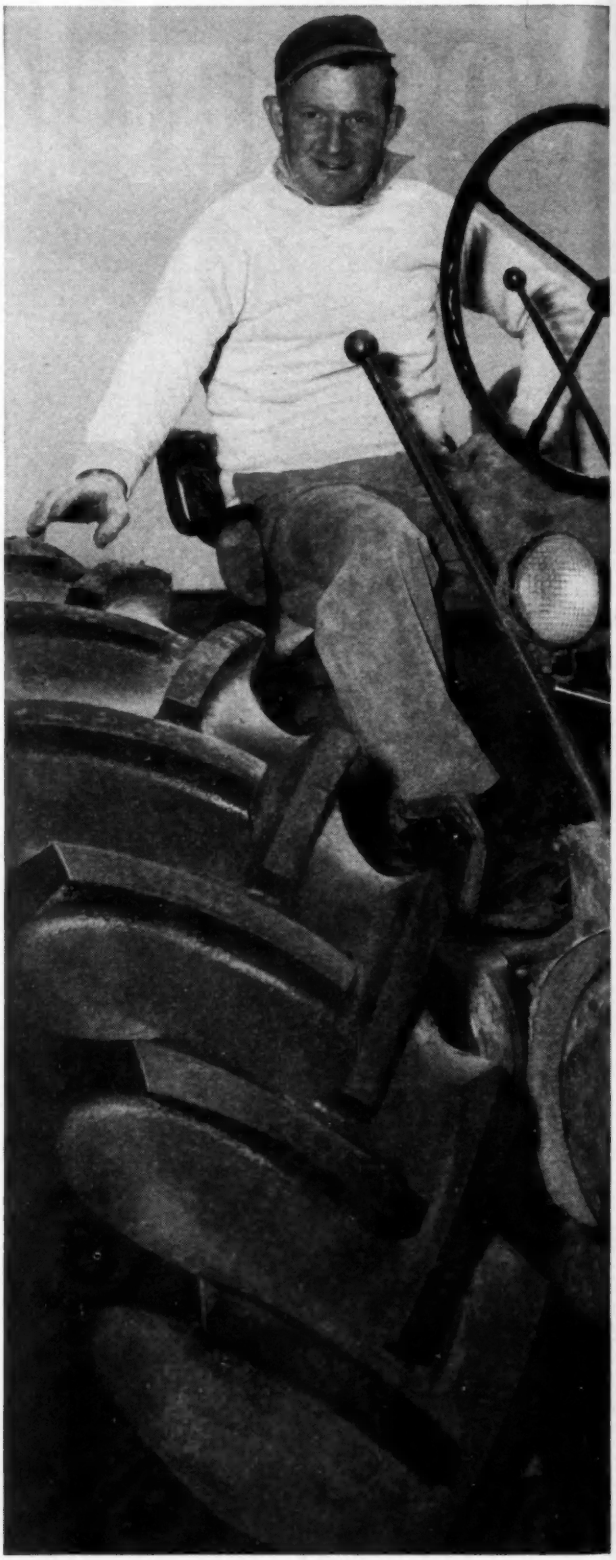
SPECIAL POTATO ISSUE

Potato Success Secrets • Growing and Selling Experience Stories

"This big bite means business!"

says Marriott H. Prickett of Mt. Holly, N. J.

"That's why Firestone's tops for traction"



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Firestone Farm Tires play an important part in the 1100-acre Prickett farm operation near Mt. Holly, N.J. A combination of heavy roadwork and soft soils, for instance, makes Marriott Prickett look for both long wear and maximum traction in his tractor tires. That's why he prefers Firestone Champion Ground Grip® tires. He likes the wide flat treads that enable Ground Grips to bite more earth—and pay off with more traction on either wet or dry soils.

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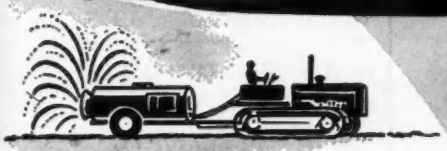

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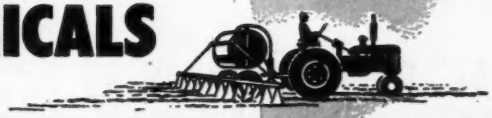

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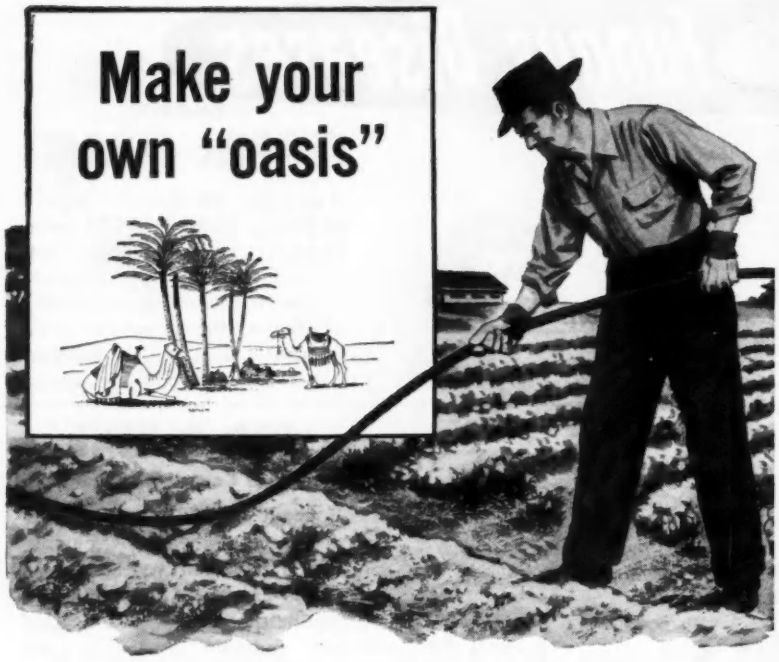

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NATIONAL **Polyethylene** PIPE

USS

UNITED STATES STEEL

AMERICAN

VEGETABLE GROWER

REG. U. S. PAT. OFF.
(Commercial Vegetable Grower)
Vol. 5 September, 1957 No. 9

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AMERICAN VEGETABLE GROWER
Published Monthly by
AMERICAN FRUIT GROWER PUBLISHING CO.
Willoughby, Ohio
E. G. K. MEISTER,
Publisher
RICHARD T. MEISTER, Editor
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AMERICAN VEGETABLE GROWER is published by American Fruit Grower Publishing Co., Willoughby, Ohio. E. G. K. Meister, Publisher and Chairman of the Board; Edward L. Meister, President; Richard T. Meister, General Manager; Gilbert Meister, Vice-President. Subscription price $1.00 per year in U.S. and possessions, to Canada and other foreign countries $1.50. Single current copies 25c, copies over one year old 75c.
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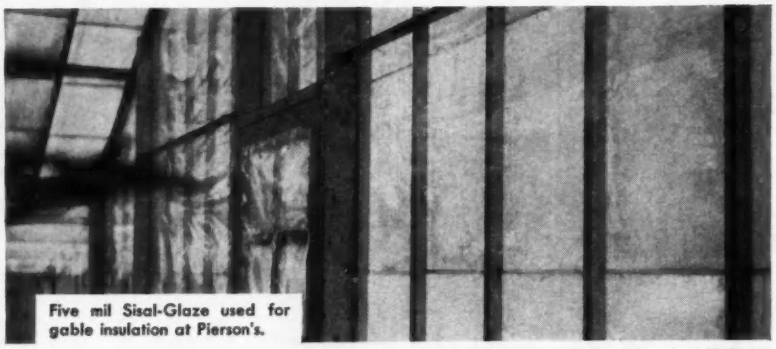
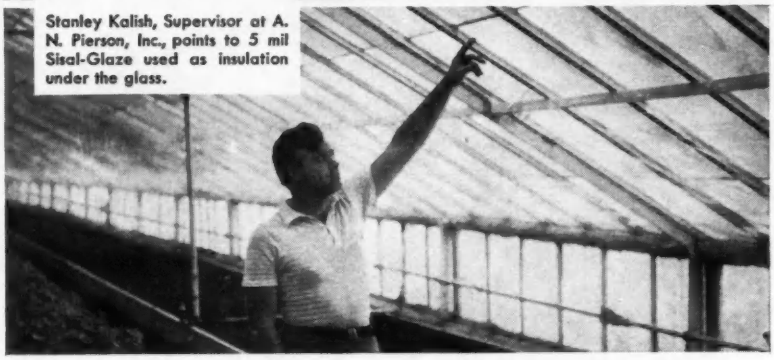


Five mil Sisal-Glaze used for gable insulation at Pierson's.



Stanley Kalish, Supervisor at A. N. Pierson, Inc., points to 5 mil Sisal-Glaze used as insulation under the glass.

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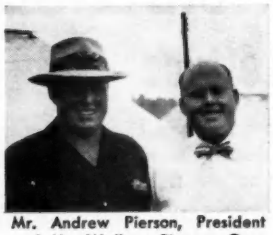

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LETTERS

TO THE EDITOR

Potato Spraying

Dear Editor:

I have read with a great deal of interest the article by J. D. Wilson and J. P. Sleesman on "20 Years of Potato Spraying," in the May issue of AMERICAN VEGETABLE GROWER. This is a good historical summary of what has been taking place with reference to the development of new fungicides and insecticides and their use in Ohio.

It is somewhat similar to what has taken place in Minnesota. Last year through means of a questionnaire I tried to find out just what our certified seed potato growers were using. Since most of our certified seed potato growers are in the Red River Valley, dusting is used rather than wet spraying, although a few use the latter method. As a result of this questionnaire, we find that about one-third of the growers use DDT plus copper. One-third use DDT plus either Dithane, Parzate, or zineb. About 5% use toxaphene plus one of the above fungicides. The rest use a combination of DDT and toxaphene.

Toxaphene entered the picture two or three years ago when some of the growers felt that DDT was not controlling the Colorado potato beetle as it did when it first came out. In other words, the beetles were becoming resistant to the chemical. However, the greatest percentage of growers are still using DDT, some using it with toxaphene.

Our most prevalent insects on potatoes are flea beetle, Colorado potato beetle, several species of aphids, and leafhoppers.

Late blight, although rather prevalent in two of the northwestern parts of the state, gives little trouble farther south.

St. Paul, Minn. A. G. Tolaas
Seed Potato Certification

CALENDAR OF COMING MEETINGS AND EXHIBITS

Sept. 15-18—Produce Packaging Association 7th annual conference and exposition, Shoreham Hotel, Washington, D. C.

Sept. 16-18—Texas Citrus and Vegetable Growers and Shippers 15th annual convention, Statler-Hilton Hotel, Dallas.—Austin E. Anson, Exec. Mgr., 306 East Jackson, Harlingen.

Oct. 2-3—Second International Potato Harvester demonstration, of individual machines which both lift and deliver potatoes into bags or a vehicle or container, Honnington Grange, Lilleshall, Newport, Shropshire, England.—Potato Marketing Board, 50 Hans Crescent, Knightsbridge, London, S.W. 1, England.

Oct. 9-11—Florida Fruit & Vegetable Association 14th annual convention, Hotel Fontainebleau, Miami Beach.—Florida Fruit & Vegetable Assoc., 4401 E. Colonial Drive, Orlando.

Nov. 14-15—Western Growers Association 32nd annual conventon, Hotel del Coronado, Coronado, Calif. Headquarters; 606 So. Hill St., Los Angeles 14, Calif.

Nov. 25-26—Cornell Seed School, Ithaca, N.Y. —P. A. Minges, Dept. of Vegetable Crops, Ithaca.

Dec. 9-12—Vegetable Growers Association of America 49th annual convention, Jung Hotel, New Orleans, La.—Joseph S. Shelly, Sec'y, 528 Mills Bldg., Washington 6, D. C.

Feb. 3-5, 1958—Ohio Vegetable and Potato Growers Association 43rd annual meeting, Neil House, Columbus.—E. C. Wittmeyer, Sec'y, Ohio State U., Columbus 10.

Dec. 1-4, 1958—Vegetable Growers Association of American Golden Anniversary Celebration, Cleveland, Ohio.—Joe Shelly, Sec'y, 528 Mills Bldg., 17th St. and Pennsylvania Ave., N.W., Washington 6, D.C.

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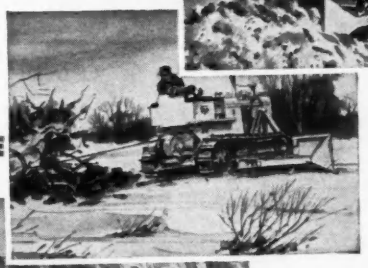

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THE POTATO ....

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Most Important Vegetable Crop

By R. T. MEISTER, *Editor*

Every month of the year potatoes are being harvested somewhere in the U. S. Annual production totals around 400 million bushels.
Photo by J. C. Allen and Son

THE POTATO claims the distinction of being the world's number one vegetable. In production it is second only to wheat among the food crops of the world. And in cash value the world potato crop of 6 billion bushels is worth more than the annual production of gold and silver!

In the United States the potato ranks first among fruit and vegetable crops in dollar value, ahead of tomatoes, apples, oranges, grapes, peaches, and lettuce, in that order. Somewhere around the country in each of the four seasons potatoes are being harvested, for this vegetable is grown commercially in every state of the union.

Two out of five potatoes, roughly speaking, come from Maine, Idaho, or California. These states, in that order, lead the nation in producing the annual crop of 350 to 400 million bushes. About one-third of the crop is now grown on irrigated land. Mechanization in harvesting has found strong support among potato growers, and most of the commercial crop is now dug by machine. Alert to the demands of a quality-conscious market, the potato industry has made careful handling, grading, washing, waxing, and consumer packaging a standard part of their operations.

An important vegetable? Yes, indeed. But the potato has really struggled for its well-deserved recognition. It was discovered in South America over 400 years ago by Spanish explorers. As they scoured the Andean mountainsides for gold and silver, they noticed the Incas cooking, drying, and storing the tubers of this plant that grew wild on the mountainsides. The word, "potato," is thought to be derived from their understanding of the South American Indians' name for the plant, *papa* or *patata*.

Blinded by lust for the glittering treasures of the earth, the Spaniards virtually ignored the potato, scarcely mentioning it in their chronicles, They carried it back to Europe around 1580, however, but it met with little enthusiasm except in Ireland, where it became the mainstay of the diet.

Scotch-Irish immigrants who settled at Londenderry, N.H., in 1719 introduced the potato to New England. It bore little resemblance to the present-day potato, being a small, kidney-shaped tuber with deep-sunk eyes, yellow flesh, and surface nodules. It tasted better than the South American potato, which had a wild, bitter, pungent flavor and odor, but was not very appetizing. In fact, the colonists generally regarded it as a poisonous aphrodisiac, so unwholesome that it would shorten life if eaten daily!

It took a rebreeding program to produce the modern potato. The blight which swept through Ireland spread to America in the mid-1800's, and it looked as though the crop could no longer be grown in this country. Not knowing that blight is caused by a fungus, scientists assumed that because the plant was no longer being propagated from seed, cuttings alone being used, the potato had degenerated genetically.

Proceeding on this theory, the Rev. Chauncy Enoch Goodrich, of Utica, N.Y., obtained wild potato seed from Chile and grew the Rough Purple Chile. From this came the Garnet Chile, which in turn was the parent of Early Rose. From these two varieties have come all the modern potato varieties of the United States.

With this rebreeding program came a great improvement in quality, and the development of the potato as a major food crop was rapid. Far from being regarded as unwholesome, the potato today is recognized as a rich source of carbohydrates, vitamins, and minerals. During World War II the British Medical Association decided that, if Britain were limited to only two foods, the best choice would be potatoes and milk.

Truly *Solanum tuberosum*, "the tuber of the nightshade family," has come a long way from its South American mountainsides. THE END.

POTATOES FLOURISH In the Land of Northern Lights

In the Red River Valley blacklands of Minnesota and North Dakota potatoes grow to perfection

By LYLE W. CURRIE, Executive Secretary
Red River Valley Potato Growers Association

IN a great upside-down land triangle nearly 150 miles wide at its Canadian border base and 40 miles wide near the southern border of North Dakota lies the Red River Valley of Minnesota and North Dakota.

Here, within sight of the northern lights, in soil so rich and black that pioneer settlers called it "black gold," potatoes are grown to perfection.

Commercial potato production in the Red River Valley began around the turn of the 20th century. Its rapid development appears to have been closely linked with five factors: 1) the need of farmers in this northern area for an adapted economic row crop to serve in wildcat control and as a complement to small grain production; 2) urbanization of the nation's population, which expanded market demand for potatoes; 3) development of transportation service, making long-distance shipments economically feasible; 4) the enforced shift of potato production away from diseased soils in several areas of the country, and 5) a shift from potato to corn production by farmers in southern areas, thereby creating a vacuum in market demand into which northern potatoes might move.

Today the Red River Valley has nearly 2500 commercial potato growers with more than 10 acres; of these, 1025 have more than 50 acres. In North Dakota 596 commercial growers produce 84% of the state's potato crop. In Minnesota slightly more than 400 commercial growers produce 55% of that state's crop. Acreages on these farms average around 130 acres; the remaining farms average about 40 acres.

Yield variability from year to year is a natural circumstance associated with the climate peculiar to the region. While 6 out of 10 growing seasons will cluster around normal in rainfall distribution, temperature, and yields of potatoes, 4 years in 10 are likely to be equally divided into years abnormally favorable for crop production and years not favorably disposed to normal crop yields.

This uncertainty of weather, as it bears on size of the potato crop, explains in part why growers in the area are inclined to stick with about the same acreage from year to year.

From a national standpoint North Dakota and Minnesota's combined production accounts for about 17% of the late crop acreage harvested in 29 states. The Red River Valley is the major producing area for late crop round red table stock. About three-fourths of the area's commercial crop or more consists of "round reds"; the remainder consists of "whites" for chipping and table stock, and a relatively small but expanding acreage of "russets."

Normally 80% of the crop is produced for table stock. In years of highly favorable yields a slightly higher portion of the total crop becomes available as table stock. Red Pontiac is the dominant variety. Under Red River Valley conditions, it has been a consistently high yielder of U. S. No. 1 potatoes possessing good to excellent all-purpose table quality, eye appeal, and storability.

Arden Burbidge, president of the Red River Valley Potato Growers Association, makes sweeps with a net to see if insect population calls for spraying field of Certified Red Pontiacs.

The high standards of North Dakota and Minnesota Seed Certification Departments has developed a good repeat market for healthy, vigorous, northern-grown certified seed. An important part of the seed market lies within the valley by reason of table stock growers who use either certified seed or seedstock but one year removed from certification.

What is the prevailing production and marketing practice in the Red River Valley today? Chronologically we may begin with spring. Crews of trained workers cut more than 3 million bushels of seed potatoes used in

John Bushee, the president of the Red River Valley Potato Control Board, checks a hill of Red Pontiacs to get an early estimate of potato yield.

Office building and warehouse of the Red River Valley Potato Research Center at East Grand Forks, Minn., where research on potato handling and storage is conducted. The grower-owned plant is leased to the USDA.

This type of mechanical potato harvester is widely used in Red River Valley.

planting the new crop. This is done by hand or by automatic cutting machine. With disease an ever-present risk, seed pieces are treated on many farms to reduce the likelihood of secondary contamination during seed cutting and handling operations, even though certified seed may be presumed to be disease-free.

After cutting and treatment the seed goes to the field where high-speed planters place the seed pieces in deep, mellow seedbeds. In this area such seedbed preparation commonly involves deep fall plowing of the ground and a series of spring cultivations with rototiller or harrow. A small amount of fertilizer containing nitrogen, phosphorus, and potash in amounts recommended by the University of Minnesota or North Dakota Agricultural College is used at planting time. In most of the valley planting is completed by June 1.

A desire to reduce labor costs and to free the area from dependence on migrant harvest workers gave impetus to the adoption and improvement in mechanical harvesting following World War II. This new harvesting technology has made a difference of about 15 cents per hundredweight in the cost of potatoes delivered from field-row to warehouse; for many growers, this has meant the difference between making or losing money in certain years.

Modern mechanical potato harvesters, mainly two-row direct harvesting types, are used in taking potatoes from the field row and loading them into large bulk conveyor boxes mounted on trucks driven alongside the harvesters. Depending on weather, soil conditions, crop yields, and type of machine used, such harvesters may handle 20 to 35 acres per day.

The canopied bulk box trucks carry the potatoes swiftly to the warehouse or washplant. There an electric motor is hooked onto the built-in conveyor in the bottom of the bulk box. Potatoes move gently from the box onto the motorized conveyor system taking them into storage or washplant holding bins.

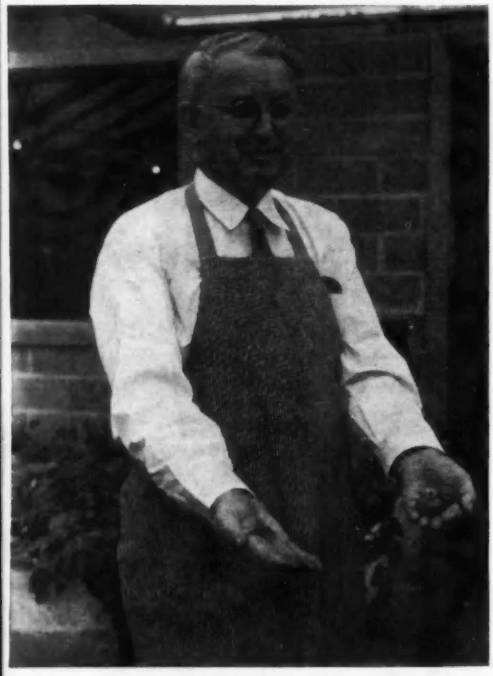
Since World War II much of the valley's table stock crop has gone into trackside warehouses. In the storage bin potatoes are tempered at just the right temperature and humidity to insure storage quality, then held at low temperatures, if destined for

(*Continued on page* 28)

BETTER POTATOES Through Research

Co-operative breeding program produces disease resistant, high yielding, good cooking varieties

By F. J. STEVENSON



Dr. F. J. Stevenson, who is a potato research scientist for Red Dot Foods, Inc., Madison, Wis., holds in his left hand fruit of potato plant; in his right hand, seeds of the fruit. To develop a new potato variety, he starts with seed of a cross between two desirable parent varieties. He directed the National Potato Breeding Program from 1930 to 1956, before joining Red Dot.

EARLY research for potato varieties resistant to late blight led to a vast breeding program which developed seedlings resistant not only to the fungus disease, but also to viruses, combined with superior horticultural characters.

Today's tubers feature high yields, good market and cooking qualities, plus resistance to two or more diseases.

Impetus to research was given by late blight which ruined the potato crop in this country and Europe from 1843 to 1847 and caused the Irish famine in 1845.

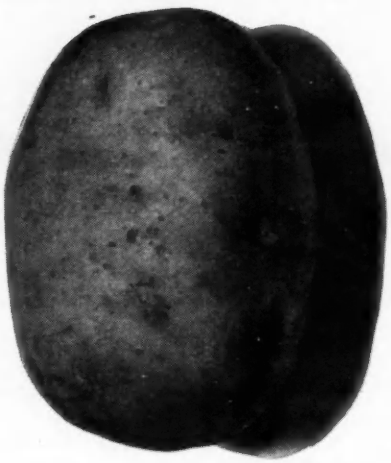
Soon after 1900, a few state agricultural experiment stations and the USDA assumed the leading role in potato breeding, with late blight-resistance a major objective. Unlike private breeders who usually relied upon chance pollination, the scientists made crosses between carefully chosen parents and selected the resulting seedling varieties systematically.

L. R. Jones, botanist of the Vermont Agricultural Experiment Station and collaborator of the U.S. Bureau of Plant Industry, collected about 100 European varieties claimed to have blight resistance in the field.

Jones and William Stuart, the latter then horticulturist at the Vermont station, jointly tested the imports for their reaction to blight and combining ability in crosses with American varieties.

USDA photo

Katahdin resists mild mosaic, net necrosis, brown rot diseases; has immunity to wart. Shallow-eyed and smooth-shouldered, it peels and washes easily, also usually cooks well.



USDA photo

Kennebec, a newer variety, has large, well-shaped tubers with shallow eyes. Good cooking qualities; resists common race of late blight, mild mosaic, as well as net necrosis.

In 1910, Stuart was appointed USDA horticulturist in charge of potato investigations. During the next decade he made hundreds of crosses and grew thousands of seedlings, many of which were resistant to late blight; but none of the varieties possessed the other characteristics of a good market potato and none was released. However, some varieties released in recent years possess field resistance to late blight inherited from the foreign importations.

USDA photo

Irish cobbler, long-time favorite, lacks important features of modern potatoes; ranks second in acreage. Susceptible to the common diseases. Deep eyes, high shoulders cause waste in peeling, make it difficult to clean.

Since there now was some control for late blight, C. F. Clark, who headed the federal potato breeding program at the Aroostook Farm, Presque Isle, Maine, from 1919 to 1929, turned to developing virus-resistant varieties. He succeeded in breeding varieties immune or near immune to mild mosaic as well as some immune to latent mosaic.

Big strides in breeding disease-resistant varieties have been made since 1929, when the USDA and nine states united in the National Potato Breeding Program. By 1955, the organization included 28 states, with

(*Continued on page* 25)

Potatoes are hauled from harvester to packing house in Dahlman Potato Unloader holding 150 bushels. They are unloaded onto conveyor (left) which carries them inside building and through washer and dryer, then over the first grader (above) where smallest sizes are eliminated.

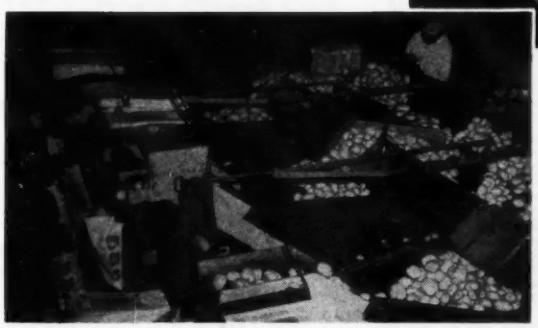
Prepackaging

BUCKEYE POTATOES

TWENTY years ago John Stambaugh, of Plymouth, Ohio, was the first grower east of the Mississippi to wash and dry potatoes. And although washing and drying are common today, not all growers have attained the "quality" reputation for fine prepackaged potatoes that Stambaugh has.

Harvesting is mechanized from field to bag, but all along the line potatoes are handled with care. The digger is equipped with rubberized chains and rolls to prevent scuffing and bruising. The pictures on this page show what happens at the Stambaugh farm after the potatoes leave the field.—*Eldon S. Banta.*

Washed and dried potatoes travel over two grading lines where faulty or off-shaped potatoes are culled. Good lighting is essential for careful potato grading.



Each grade of potato travels into a packaging line. Here U.S. No. 1 Chippewas are being packaged in 15-pound Vent-Vu bags.

Close-up view of Lockwood automatic baggers in operation. Potatoes are packed under the Buckeye brand of Ohio Potato Growers Association in 10-, 15-, and 50-pound paper bags.

From bagger potatoes move to automatic tying machines at end of conveyor and are loaded onto Barrett truck pallets.

Two hours after they were dug, potatoes are loaded onto truck for trip to market. A conveyor belt eases the job.

STATE NEWS

- **Fewer 'Sweets' This Year Than in 1956**
- **Two New Onion Hybrids Released by Wisconsin**

Fewer Sweets

LOUISIANA—Based on July 1 conditions, USDA forecasts a sweetpotato crop of approximately 8.2 million bushels for the state in 1957—a million bushels less than last year. Reasons for reduction: less acreage—79,000 against 85,000; lower yield per acre—105.5 bushels forecast against 109; washing out of acreage this year during hurricane "Audrey;" a flourishing crop of weeds and grass.

National crop forecast is 30.2 million bushels, a half million less than last year. Both state and national crop may be the smallest since 1952.

New Onion Hybrids

WISCONSIN—Two new onion hybrids especially suitable for Wisconsin silt loam soils have been released by the University of Wisconsin in co-operation with USDA and Idaho Agricultural Experiment Station.

Golden Beauty, a high globe type with golden yellow scales, should be marketed not later than December since storage life is intermediate. **Bronze Perfection,** globe shaped with dark yellow scales, stores well. Seeds for planting should be available next spring.

W. H. Gabelman, university horticulturist who supervised the work at Madison, states neither variety is recommended for growing mature crops from seed on peat soils.

WINS ACRE OF MAINE POTATOES

Women are talking about Maine potatoes since an acre of them went to Mrs. Dee Sweet of Station WISH-TV, Indianapolis, Ind., as a unique prize for the lucky ticket holder at the annual meeting of the American Women of Radio and Television in St. Louis. Donated by the Maine Department of Agriculture and the Maine Potato Commission, the acre of potatoes will be harvested and stored until Mrs. Sweet decides it is the best time to sell. E. Perrin Edmunds, Fort Fairfield, president of both the Maine Potato Council and the National Potato Council, is growing the potatoes.

Market Demands Quality Plus . . .

NEW YORK—Growers must be good marketeers to attain permanent success.

That's one of the conclusions of the College Vegetable Extension Committee of Cornell, after a tour of the Oswego County lettuce-growing area and the Syracuse Warehouse of America Stores Company (Acme Supermarkets).

The group found the lettuce crop excellent, prices good. Lettuce was being field packed in new cartons under a brand name, vacuum-cooled and inspected. Such a situation offers growers the opportunity of improving the reputation of New York lettuce on the market.

At the Acme Warehouse, which supplies 80 stores, the group noted some poor grading, packaging, and handling of otherwise superior New York produce. This has led, in some cases, to choice of non-New York items by the produce buyer. California potatoes, for example, were used almost exclusively this spring and early summer. Mr. Shimborski, the produce buyer, said he likes to buy New York potatoes when he can get the grade he needs and the kind that pleases housewives—uniformly sized, good, well-groomed potatoes! But starting this fall he's buying only washed potatoes.

Local vegetable growers could learn much from a similar tour of a produce assembly warehouse. Acme officials indicated they would co-operate with any county agent who would like to take a group through their warehouse facilities.—*P. A. Minges, Cornell U., Ithaca.*

Fewer Varieties for Potato Profit

MICHIGAN—Potato growers are urged by George Motts, agricultural economist at Michigan State University, to concent-

(*Continued on page* 16)

it's special CANTALOUPE TIME!
MEMO
Here are four very special ROBINSON melons!
SPECIAL? Yes, because we have grown them on our own rich, disease-free California seed farms. And we've specially bred their parents to vigorously grow the delicious, uniform and beautiful melons we want.
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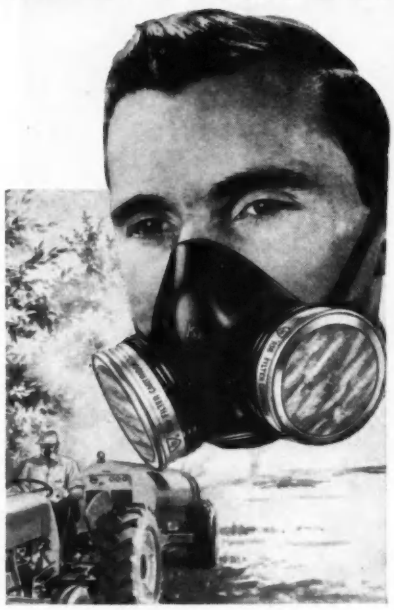
*(*And Many Other Toxic Insecticides)*

AO R5058 RESPIRATOR



APPROVED BY U. S. DEPT. OF AGRICULTURE

This American Optical Company respirator meets the requirements of the Dept. of Agriculture for use against Phosdrin and is recommended for protection when spraying this highly toxic insecticide outdoors.

The AO R5058 is also approved by the Dept. of Agriculture for protection against dusts, sprays, mists and vapors of Demeton (Systox), TEPP, HETP, Parathion, Aldrin, Dieldrin, Endrin, Chlordane, EPN, Nicotine and other insecticides. The R58 Filter Cartridges are filled with the highest grade activated charcoal which filters out the poisonous vapors. Each cartridge has a built-in fibrous filter for stopping particles of dust, mist and spray. These units are very small and *very efficient*, due to the extremely high quality of materials used.

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Courtesy Kern County Potato Growers Association

STORY BEHIND KERN COUNTY LONG WHITES

During peak potato harvest in Kern County, California, 700 to 1200 carloads are moved in each 24-hour period—requiring some 10,000 persons to harvest, haul, pack, load, and transport the clean, smooth White Rose variety, known in the trade as Kern County Long Whites.

With about 400 growers, Kern County normally produces about 60% of the California total. The state has averaged about 42 million bushels for the past 10 years, or 10.5% of the total national average.

Kern is in first place among counties producing potatoes for the late spring and early summer market, and second only to Aroostook County, Maine, in total annual potato acreage.

Advancement of the Kern district potato industry has been spurred by Kern County Potato Growers Association, Inc., Bakersfield, a nonprofit organization of voluntary membership. The association last year admitted potato growers from Southern Tulare County to membership. Heading the organization as executive manager is Francis P. Pusateri.

STATE NEWS

(*Continued from page* 14)

rate on the growing of fewer varieties which produce high yields, in order to meet out-of-state competition.

Seven high quality, high yielding varieties are recommended, including Russett, Katahdin, Sebago, Green Mountain, Pontiac, Chippewa, and Irish Cobbler, from which each grower should choose one or two according to his soil and harvest season. For best results, good cultural practices are necessary with any variety.

Potato Blight Control

MINNESOTA—Potato test plots sprayed seven times last summer with zineb and DDT yielded 356 bushels an acre compared to only 172 bushels from plots sprayed with DDT alone. Potatoes sprayed with maneb yielded 335 bushels an acre. It is reported that in a wet season these chemicals keep the vines green longer. Spraying with the new fungicides must be done in accordance with state recommendations.

Phil Starbuck

COLORADO—Phil Starbuck, prominent San Luis Valley potato grower died recently. Mr. Starbuck was president and one of the founders of the Grower-Shipper Potato Company, Monte Vista. He also was serving as secretary of the San Luis Valley Potato Administration at the time of his death.

Quality Potatoes

PENNSYLVANIA—Production of quality potatoes was emphasized at the recent annual Pennsylvania Potato Institute held at Potato City Hotel near Coudersport.

Ivan Miller, Corry, president of the Pennsylvania Co-operative Potato Growers Association, reported wide consumer acceptance of potatoes that had been grade inspected. These potatoes not only recaptured local markets but sold at top prices with quality out-of-state brands.

A trial experience in federal-state grade inspections on the 1955 crop resulted in statewide adoption by association members for 1956.—*Stan Wilczynski.*

New President

NEW JERSEY—J. Wilson Hughes, an asparagus and fruit grower in Gloucester County is the new president of New Jersey Vegetable Growers Co-operative Association, succeeding Joseph G. Hancock. The latter resigned to campaign for a congressional seat in the second district.

Know Your . . . VEGETABLE SEEDS

By VICTOR R. BOSWELL
U.S. Department of Agriculture

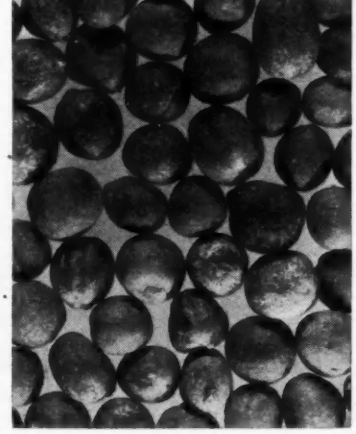
SPROUTING BROCCOLI

SPROUTING BROCCOLI is a very close relative of cabbage, kale, collards, kohl rabi, Brussels sprouts, and cauliflower, and the seeds of all are alike. They are small (8000 to 9000 per ounce), dark brown to bluish black, and have finely reticulated surfaces, sometimes with faint, irregular color markings.

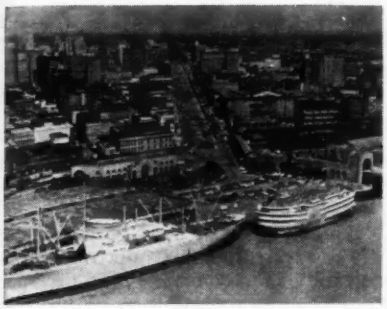
Sprouting broccoli is an annual plant; the others named above are biennials. Sprouting broccoli does not need a period of cold to induce flowering as do the biennials, and its climatic requirements for seed production are less exacting than those of cabbage and cauliflower, for example.

Reported acreage of sprouting broccoli grown for seed in this country annually ranges from about 75 to 125 acres per year with production of about 75,000 to 135,000 pounds. Average yields of seed per acre are 1000 to 1100 pounds, somewhat more than for cabbage seed. In recent years, only a few hundred pounds of seed have been imported annually. Our supplies come largely from California.

For seed production, since the flowers are cross-pollinated by insects, plantings of sprouting broccoli should be isolated from cabbage and all the other kinds named above when in flower, by at least a mile;



varieties of sprouting broccoli by a quarter of a mile.



New Orleans, the country's second port in valuation of exports and imports, serves as the gateway to the world for mid-continent America.

VGAA's Convention

Colorful, historic New Orleans is setting for meeting in December

NEW ORLEANS — "Gourmet's Delight," "City within a City"—blends attractions for all when the Vegetable Growers Association of America stages its own "Mardi Gras," convention-wise, December 9-12. The Jung Hotel will be headquarters.

Varied Program

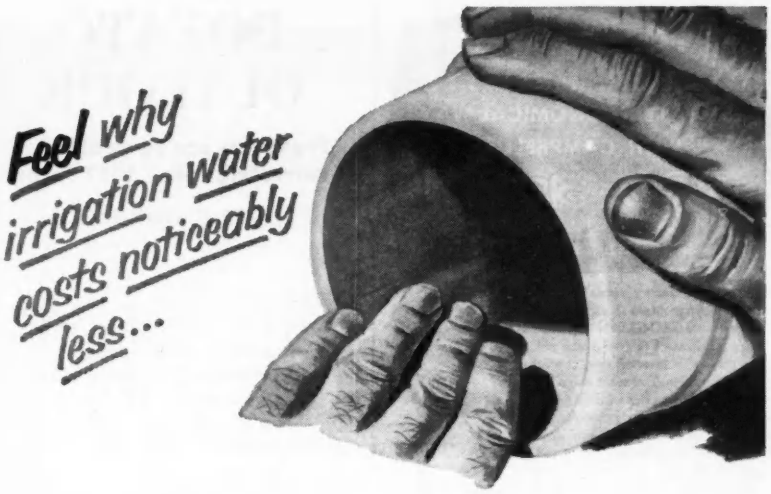
The convention program will feature outstanding speakers from government, research, and industry. The convention opens Monday afternoon with a keynote address by U.S. Senator Allen J. Ellender of Louisiana. The second day will feature sectional meetings dealing with commodity problems. The third day growers will hear industry representatives discuss research progress, marketing programs, and activities in the vegetable industry. The convention will be climaxed by the annual banquet, featuring Dr. Kenneth McFarland, educational consultant and lecturer for General Motors.

Post-Convention Tours

An all-day bus tour of the Mississippi Delta is being arranged for December 12. Stops will be made at Diamond, to visit the vegetable and citrus experiment station; at Empire, to inspect the shrimp fleets; at Vanice, to visit citrus groves and an orange winery.

For those who wish to enjoy an extended vacation, a trip to the famous Rio Grande Valley Vegetable and citrus areas and Mexico City is available, leaving New Orleans on December 13 and returning to the states on December 18.

Convention program details may be secured from VGAA's executive secretary, Joseph S. Shelly, 528 Mills Building, 17th & Pennsylvania Ave., N. W., Washington 6, D. C.



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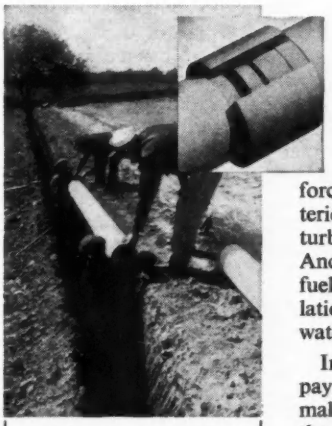

Why Transite is your best protection against costly leakage—the patented Ring-Tite coupling (cutaway view above right). Rubber rings compressed and locked in grooves to provide a lasting, watertight seal. With all its tightness the Ring-Tite joint is quickly, easily assembled to save time and expense of installation!

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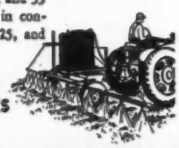

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Tomatoes....2-5 tons Peas.....1-2½ tons

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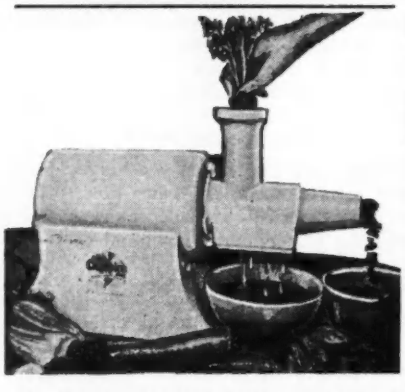

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A VEGETABLE GRATER: In seconds you can grate beets, turnips, carrots, coconuts, and nuts for tasty salads, spreads, etc.

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Price completely equipped with ⅓ H.P. G.E. special built motor, 60 cycle 115 V; 5 year service guarantee; instruction book with recipes including the three in one feature for only $160. F.O.B. factory.

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POTATO OUTLOOK

Prospects are favorable for marketing the 1957 crop

By A. E. MERCKER
National Potato Council

WHEN we analyze the July 10 USDA potato crop report, it portrays considerable sunlight. It can be interpreted in a manner in which the gloomiest clouds of the 1957 crop have been dissipated. It does flash a caution light for some late potato producing areas. From the report I would interpret that, if growers in the summer areas exercise good judgment and harvest their crop during the summer to eliminate sunscald and under- and over-maturity, we definitely have passed the period of lowest prices.

The May and June marketings of late 1956 crop potatoes were estimated at 25% larger than those of a year ago. The marketings of the large winter and spring early crop of 40 million hundredweight, which was 18% larger than that of a year ago, is completed, even though shipments continued later in the season than those of last year. Unlike other years, very few late spring potatoes were placed in cold storage. Therefore, the early summer crop, the production of which is about the same as that of a year ago, has probably less interference from high quality cold-stored potatoes. The late summer production is 8% below that of a year ago so that the entire summer supply of potatoes is adjusted to the demand.

Summer Prices: Low

Prices have been abnormally low and, even under the adjusted supply situation, the consumptive demand may show resistance to price increases. Consumers have been conditioned to low prices and it may be difficult to raise prices above certain levels. Hard work on the part of the vendors who sell summer potatoes is necessary to raise prices so that the returns for potatoes will at least bring the cost of production. By withholding the lower grades and diverting them from consumptive channels, growers in the late summer and fall states have a powerful sales argument to place a firm bottom under their prices and at the same time give the consumer better potatoes.

Consumption: Good

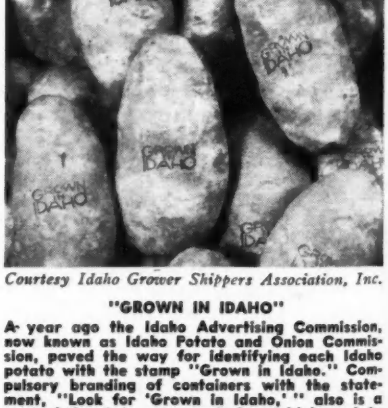
Consumption during May, June, and early July was much greater than that of a year ago when the supply was short. In addition, the highest quality late potatoes produced in 1956 were sold during the late spring and early summer. These potatoes were also from areas operating under marketing orders, and the best quality was shipped. The low prices prevailing for early potatoes made it unprofitable to sell low grades from these areas, and this improved quality stimulated consumption.

The acreage of potatoes in the early summer states has been adjusted, as the acreage planted is about equal to the USDA guides. These states are to be congratulated for resisting the impulse to increase acreage which was stimulated by the good prices received last season.

The late summer and fall states overplanted their guide by about 3%. The total acreage for harvest in the eight eastern fall states is 2000 acres under the guide. The largest acreage reduction was made in Maine—7000 acres less than a year ago. In the nine central fall states the acreage for harvest is about 7225 acres, or 2% more than the guide, and in the nine western fall states it is about 24,000 acres more than the guide, nearly all of which is in Idaho.

Fall Crop Prospects

The late crop is still to be made. Indications are that crop prospects



Courtesy Idaho Grower Shippers Association, Inc.

"GROWN IN IDAHO"

A year ago the Idaho Advertising Commission, now known as Idaho Potato and Onion Commission, paved the way for identifying each Idaho potato with the stamp "Grown in Idaho." Compulsory branding of containers with the statement, "Look for 'Grown in Idaho,'" also is a part of the state program to boost Idaho potato consumption.

A leading factor in the successful movement of Idaho potatoes to market is the Idaho Grower Shippers Association, Inc., of Idaho Falls. According to Edd Moore, executive secretary-manager, the association is composed of 200 firms which process and ship 90% or more of the fresh fruits and vegetables grown in southern Idaho and Malheur County, Oregon. This past season members produced about 40% of the 191,000 acres of potatoes grown in Idaho. Association activities include, in addition to production and distribution, cost studies, legislative matters, labor relations, compensation group insurance, health and accident group insurance, traffic problems and issuance of rate sheets.

are above average from Maine through western New York, western Pennsylvania to the Pacific Coast. Late July and August weather will determine the yields, and it is reasonable to assume that yields are likely to be good, so that fall production could be well over the guide.

About two-thirds of the late crop is operating under marketing orders, the administrative committees of which have learned how to use the orders for constructive purposes and remove the oversupply in the form of the undesirable potatoes, diverting them to other uses. These committees are also learning to work together, and there is no question but that their constructive efforts will place a solid foundation under the price structure of the fall potato crop. THE END.

Answering Your QUESTIONS

Don't let your questions go unanswered. Whether large or small, send them with a three-cent stamp for early reply to Questions Editor, AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

CORN BORER CONTROL

I grow about 10,000 ears of sweet corn to sell but last year I couldn't get good control of corn borer. What can you recommend to help remedy this situation?—*Pennsylvania.*

Use from three to four applications of DDT, beginning when corn borer eggs hatch and repeat at five-day intervals. These sprays are followed by two or three applications of DDT and mineral oil at five-day intervals, applying the spray only to the silk. We are sending our reader a copy of the bulletin, "The European Corn Borer in Sweet Corn," forwarded to us by Lloyd E. Adams, associate extension entomologist at Pennsylvania State University, which discusses control measures in more detail.

PEA AND BEAN HULLERS

Where can I buy a sheller for peas and beans?—*North Carolina.*

Try Dixie Canner Co., Athens, Ga.; A. K. Robins & Co., 1713 E. Lombard St., Baltimore, Md.; Scott Viner Co., 1224 Kinnear Rd., Columbus 8, Ohio; or Sinclair-Scott Co., 6245 State Rd., Philadelphia 35, Pa.

TRELLIS 22 TOMATO SEED

Where can I buy seed of the Trellis 22 tomato?—*Louisiana.*

Try Joseph Harris Seed Co., Moreton Farm, Rochester 11, N. Y.; Boston Market Gardeners Association, 240 Beaver St., Waltham 54, Mass.; or Comstock Ferre & Co., Wethersfield 9, Conn.

STERILIZING POTS

What should I use to sterilize my pots and flats in the greenhouse?—*Ohio.*

To sterilize pots, flats, and even sides and bottoms of benches, use a solution of formaldehyde in water (about 1 pint formaldehyde in 10 pints water).

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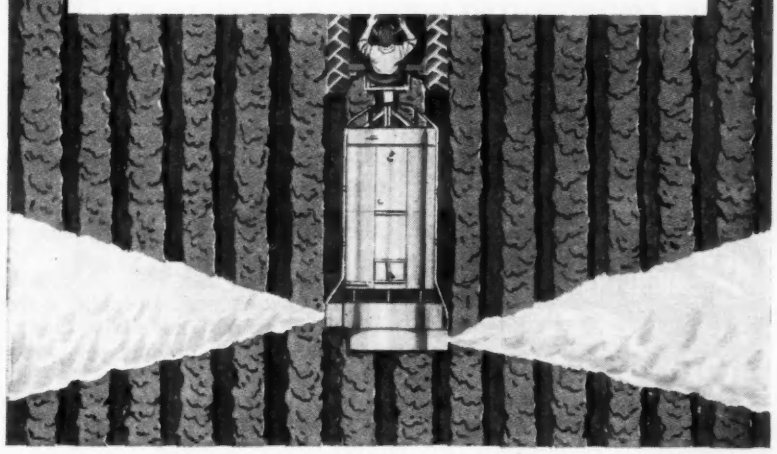

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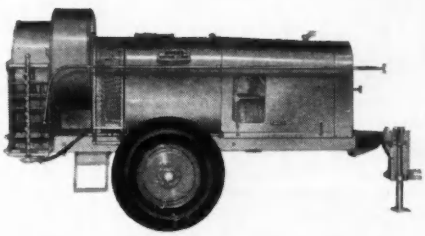

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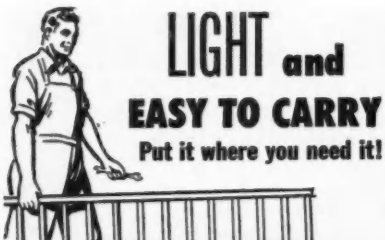

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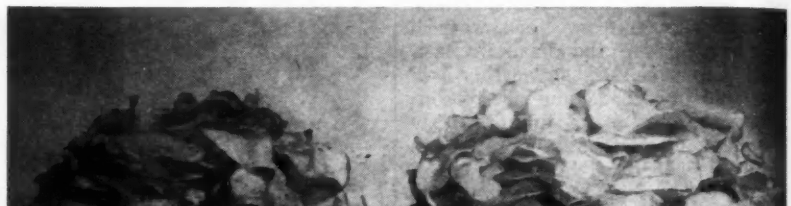

Chips made from potatoes of the same lot which had been separated into specific gravity groups with table salt solutions. Note darker colored chips from potatoes possessing low gravity.

More Potatoes Earmarked for PROCESSING

Growers can ease oversupply on fresh market by meeting demands of increased consumption of processed potatoes

By ORA SMITH

Director of Research
National Potato Chip Institute

INCREASE in the proportion of the potato crop earmarked for processing should be added interest for growers to meet this demand—thereby easing oversupply of potatoes on the fresh market.

In 1940, less than 5½ million bushels of potatoes were processed in this country, representing less than 2 pounds of fresh product per person annually.

The figure jumped to about 39 million bushels in 1953, increasing to approximately 43 million in 1954 and to more than 56 million in 1955. The total for last year topped the 65-million-bushel mark, accounting for 23.4 pounds of fresh potatoes per person.

22% of Total

According to the latest figure, then, processed potatoes make up about 22% of the total consumption of potatoes.

Although consumption of potatoes in processed form within the next five or 10 years cannot be predicted, the future appears promising. Extending the curve of consumption for the past five years on the same slope for the next five- and 10-year periods, it is indicated that about 106 million bushels would be processed in 1961. This figure would be 33% of the total consumption if the present rate of 106 pounds per person a year is maintained. In 1966, these figures would mount to 148 million bushels, or 42% of the total potatoes consumed.

Potato chips and frozen French fries lead the processed potato items. They comprised about 83% of the total processed crop last year, with chips alone making up 69% of this total. Other processed items are dehydrated, canned, flour, hash, soup, and stew products. In addition, about 4 million bushels are commercially prepeeled and sold to hotels, restaurants, and retail consumers.

Quality potato chips, French fries, and dehydrated products require extra attention in growing, handling, and storing potatoes. Best methods for growing and storing potatoes for table stock may not be best for processing. Interior of the potato and its chemical composition are more important to processors than to those who use potatoes in any other form.

Since consumers "eat with their eyes," good color of the chip and French fry is the number one problem facing the processor. No matter how good its appearance, if the potato does not produce a light-colored chip or French fry within a reasonable length of time at a modest cost, it is worthless to the processor. All processors desire chips uniform in color, with no dark rings, areas, or spots, throughout the year.

Most important chemical constituent of the potato which predetermines color of chips and French fries is reducing sugar.

Reducing Sugars

Reducing sugars do not cause color formation when heated alone in deep fat. However, when they exist in a potato along with amino acids, proteins, ascorbic acid, and other normal constituents, they react chemically at

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TABLE GROWER

frying temperatures, resulting in dark or brown discolorations.

Reducing sugars fluctuate more than the other constituents under certain methods of growing and, especially, at certain storage temperatures. Research has shown that if the reducing sugar content of a potato is known, the color of the chips can be predicted. A sugar-testing method and kit have been developed which makes it possible to predict in less than two minutes what the chip color will be.

Second in importance, after good color, is high specific gravity or total solids content.

High specific gravity potatoes result in high yields of chips with low oil content and lighter color than low gravity potatoes.

French fries also are less oily and mealier in texture, and the dehydrated product will yield greater and be less likely to turn gray during storage and transit. In addition, potatoes of high gravity can be more easily, quickly, and uniformly conditioned after low temperature storage.

Recognizing the value of high gravity potatoes, the National Potato Chip Institute developed the potato hydrometer. The instrument accurately measures potatoes for specific gravity in less than 2 minutes. THE END.

WHERE TO FIND POTATO FACTS

COLLECTING and publishing scientific as well as general information on all phases of the potato industry are the main activities of the Potato Association of America.

Besides the *American Potato Journal*, a monthly magazine containing reports from state, USDA, and foreign research workers, as well as popular articles on the potato industry, the association also publishes the annual *Potato Handbook*.

The organization is financed primarily by dues, which are $4 per year for regular members. Because of their special interest in its activities, sustaining members donate $100 annually.

Any person or company interested in the potato industry may become a member. Regular meetings are held annually, when research papers are presented and business conducted. The next session is set for December 2-4 at the USDA Plant Industry Station, Beltsville, Md.

Non-members may secure the handbook for $2 a copy (reduced rates for quantity orders), and the journal for 40 cents. Write to the Potato Association of America, New Jersey Agricultural Experiment Station, New Brunswick, N.J.

for More Profit from Potatoes

GROW POTATOES for POTATO CHIPS

In 1956 potato chippers used approximately 45,000,000 bushels of potatoes to produce almost 650,000,000 pounds of potato chips. Potato chippers purchased more than 22% of all potatoes grown for human consumption. Sales of potato chips have been increasing at the rate of 10% per year for several years. Growers who can supply the top-quality, high specific gravity potatoes needed by the potato chip industry will always find a ready market for their crops. To help *you* grow potatoes for this big market, write today to the National Potato Chip Institute for free literature on growing, testing and storing potatoes!

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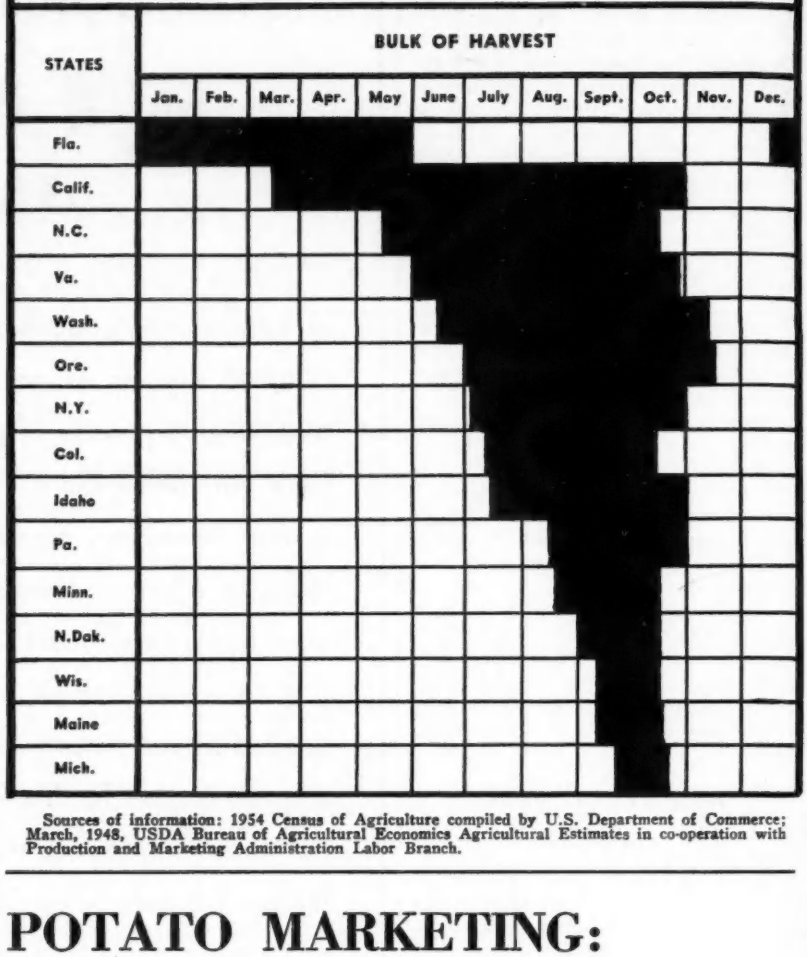
WHEN POTATOES ARE HARVESTED IN 15 LEADING STATES



Sources of information: 1954 Census of Agriculture compiled by U.S. Department of Commerce; March, 1948, USDA Bureau of Agricultural Economics Agricultural Estimates in co-operation with Production and Marketing Administration Labor Branch.

POTATO MARKETING:

A Grower's Viewpoint

The old days of 'cellar marketing' are gone, but the consumers' wishes must still be met

By H. J. EVANS

OLDER potato growers can remember when marketing potatoes simply meant taking a load into town in the fall and leaving 20 to 50 bushels in the cellars of "steady customers" around town. Some grocery stores would take 400 to 500 bushels. Little attention was given to washing, sizing, grading, or packaging. The consumer absorbed the natural shrinkage and expected to get quite a lot of loss during the winter months.

Today it is not uncommon for a grower to have his potato crop sold a thousand or more miles away. Standardization of grades and proper labeling enable a buyer to know exactly what he is getting before the potatoes even leave the shipping point. The potato industry is a nationwide industry, and price and demand are not established by the local crop.

Marketing potatoes today, if the grower has any volume at all, requires the services of a sales engineer who must know what the various classes of trade want in the way of varieties, sizes, grades, and packages. Most growers find it more efficient to market their crop through a marketing service, individually or collectively.

New Merchandising Problems

The marketer finds many new problems in efficiently merchandising the crop. Today the consumer wants her potatoes washed, graded,

and packaged in a convenient size. She doesn't want a lot of big potatoes or a lot of small potatoes in the same bag, and she doesn't want a lot of defects or deep eyes.

She depends upon her retailer to get her the kind of product she wants. The retailer in turn gets his supplies from the wholesaler or, in the case of chain stores, from a central warehouse where a potato buyer takes care of the purchases.

Volume Marketing

This means volume buying, and the producer must figure on volume packing in order to meet that demand. Many growers do not have sufficient volume to enjoy this volume marketing, but through cooperatives, potato dealers, and potato handlers the crops of several growers can be run through the same warehouse and graded according to the same specifications.

Today the potato grower has very little contact with the consumer except through these regular channels of distribution. He seldom sees the inside of any of his consumers' cellers. He sells a carlot buyer who is not only quality-conscious but price-conscious.

While the connections which the grower had with the consumer in the old days may seem to have been severed, forward-thinking growers realize that successful marketing depends on meeting the consumer's wishes. Only by putting the best cooking potatoes into the consumer's hands and keeping the low grades off the market can growers hope to improve their position and increase consumption of potatoes. THE END.

UNITED'S POTATO DIVISION

WITH its activities focused on the potato industry, the Potato Division of the United Fresh Fruit and Vegetable Association operates under the motto of its parent organization—"Serving all factors in the production and marketing of fresh fruits and vegetables."

Representing a history of more than 50 years, United is an organization of growers, shippers, wholesalers, terminal market operators, brokers, large groups of retailers, and members of allied industries. Its members handle about 75% of total commercial fresh fruit and vegetable marketings. Headquarters are located in Washington, D.C., with the field office in Kansas City, Mo.

Among activities of the Potato Division is publication of *Spudlight*, a weekly bulletin now in its 14th year. The weekly lead article, "What Potato Shippers Tell Us," features market and shipping conditions in principal potato areas, reported the day preceding publication.

Each year a number of special editions of *Spudlight* are printed, such as the annual certified seed issue, and one on specific gravity separators.

The division held its first annual Utilization Conference in 1948 to discuss use of potatoes and expansion of by-product manufacture. Topics since have been broadened to include nearly all potato research underway, as well as production and marketing. The eighth conference was held in August of this year in Albany, Calif.

The division also features two sessions at United's annual convention.

Another program of the division is promotion of the use of the blank surfaces of potato packages to carry the message of the product's healthfulness and goodness.

Other activities include dealing with legislation, tariffs, government regulations, and reporting of crop conditions as seen by the USDA. The division draws upon all United's services. Secretary of the division is Kris P. Bemis.

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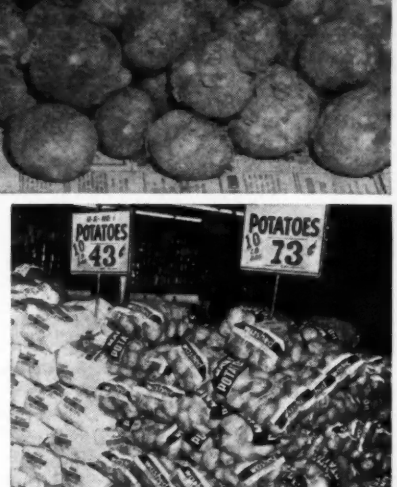
They're all potatoes—but what a difference in looks and salability between washed and unwashed potatoes. In retail market display (right) high-quality washed potatoes of uniform size and freedom from defects sold well in see-through polyethylene package, even at 30-cent premium over competing pack.



She Wants

SPUDS SHE CAN TRUST!

Eye appeal and quality are all-important factors to the housewife, potato growers are finding out

By ALVAH L. PERRY
University of Maine

IN a recent survey 79% of Detroit, Mich., housewives said that they would rather pick their potatoes out of bulk bins instead of taking a chance on the quality of prepackaged tubers. This rather startling opinion certainly expresses a lack of confidence in the potato industry and in its ability or willingness to put up an honest and dependable pack.

Every potato grower, shipper, and handler knows what the consumers want at the retail counter. (According to the Detroit survey: mealiness, flavor, cleanliness, uniformity. Blackballed: dirt, cooking dark, waste, uneven size.) Consumers today have an increasing awareness of value, and the occasional deviation in quality is not only remembered but resented. No one enjoys being gypped.

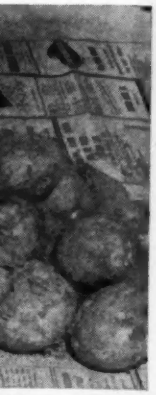
Although potatoes are the most important vegetable both in dollars and in volume, it would seem that less effort has been made to create consumer good will for this product than for any other fruit or vegetable. The current interest in the National Potato Grade Labeling Act is evidence that many forward-looking men in the potato industry are concerned over the consumer's too frequent inability to get her money's worth when she buys potatoes.

No bill or act will ever guarantee the return of a dollar of quality for a dollar of cash. It will take the combined efforts of growers, shippers, and handlers to protect the housewife from poorly graded potatoes and to build her confidence in prepackaged tubers.

Grading potatoes must be more than the mechanical process of picking off defective potatoes as they pass over a grading table. Proper grading means separating the potatoes into lots of uniform quality.

Consumers don't want particularly small or particularly large potatoes. Extreme sizes on either end of the scale should be used for some other purpose than in a retail consumer package, although legally either large or small potatoes may be packed under a U.S. grade label.

Another aspect of grading that has been given little consideration by many packers is the promotion of a pleasing uniformity of appearance. This would include a uniformity of cleanliness and freedom from defects.



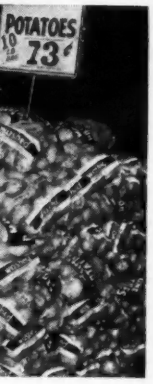


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TABLE GROWER

The lady of the house does not like to buy dirt at better than a nickel a pound. Neither does she wish to pay for potatoes that must be pared free of external defects.

An increasing number of potato areas are packing consumer-size packages at the grower stage. This is as it should be because of the economies concerned. If a packer feels that his responsibility ends when the packaged potatoes are loaded into the car or truck, he is in for a disappointment. There may be no repeat orders.

Careful attention and handling are required to make sure that each individual package reaches the consumer with its original quality intact. The handler and the retailer are still to be convinced that potatoes are not hardware and that packages or bags of tubers cannot be thrown around the terminal market or tossed down the stairs of the retail store.

Many people in the produce industry object to the use of transparent polyethylene bags for potatoes. All packaging materials have their limitations, and poly is no exception. Potatoes do turn green when exposed to light, and poly does not prevent this "greening." However, until the industry builds the consumer's confidence in the quality of potatoes in a pig-in-the-poke package, or until some new transparent packaging material comes along that will prevent greening, the poly bag will become increasingly popular.

The day of the take-it-or-leave-it attitude is over. Brokers, wholesalers, and retailers have resisted changes in marketing practices because of the possible effect on prices. This unimaginative attitude has encouraged potato growers and shippers to follow the path of least resistance by conforming to long-established practices and by letting tubers go to market with little or no attempt to follow consumer desires.

This attitude toward the final market will have to be changed if the potato people in this country have any desire to build good will and to increase retail potato sales. THE END.

BETTER POTATOES

(*Continued from page* 12)

informal co-operation from 11 other states, three territories, and several foreign countries.

Research under the National Potato Breeding Program was expanded to include breeding of varieties resistant not only to mild and latent mosaic but to many other diseases as well. Some of the varieties released are listed below, under the disease to which they are highly resistant:

Mild Mosaic: Cherokee, Chippewa, Earlaine, Houma, Katahdin, Kennebac, Merrimack, Saco, Sebago, Teton, and Sequoia.

Latent Mosaic (virus X): Saco and Tawa.

Yellow Dwarf: Sebago.

Net Necrosis: Cherokee, Chippewa, Earlaine, Houma, Katahdin, Kennebec, Merrimack, Saco, Sebago.

Late Blight: Boone, Cherokee, Delus, Kennebec, Merrimack, Plymouth, Pungo, and Sebago.

Dry Rot: Cherokee, Delus, Kennebec, Merrimack, Saco, and Sebago.

Early Blight: Merrimack.

Common Scab: Cherokee, Cayuga, Menominee, Ontario, Pungo, Plymouth, and Seneca.

Verticillium Wilt: Houma, Menominee, Ontario, and Saranac.

Wart: Katahdin, Mohawk, Sequoia, Mesaba, and Norkota.

Corky Ringspot: Merrimack and Plymouth.

Ring Rot: Merrimack, Saranac, and Teton.

Hopperburn: Sequoia.

Varieties resistant to two or more diseases are: Cherokee, Houma, Katahdin, Chippewa, Kennebec, Menominee, Merrimack, Ontario, Saco, Sebago, Saranac, Plymouth, Sequoia, and Pungo. Saco, released in 1954, is resistant to late blight, latent mosaic, mild mosaic, rugose mosaic, net necrosis. THE END.

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Pointers on Potato

WASHING AND WAXING

By HERBERT FINDLEN
U. S. Department of Agriculture
East Grand Forks, Minn.

COMMERCIAL washing of potatoes is becoming more and more common, as the demand for washed potatoes continues to increase. Washing improves market appearance of potatoes, especially those dug from wet, marly, or dark-colored soils.

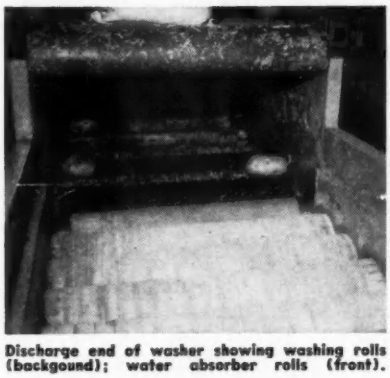
But washing is not always an unmixed blessing. With early potatoes, it increases skinning and the chance for subsequent contamination with rot-producing organisms.

Washing Equipment

The most common type washer consists of a series of underneath brushes and overhead spray nozzles. With most washers, which are installed in the grading line before or after the sizer, excess water is removed from the potatoes by a squeegee water absorber. The device consists of a series of blanket or sponge rubber-covered transverse rollers. Underneath and touching each roller is a spring-mounted steel wringer roller.

A soak tank is used ahead of the washer if dirt removal is difficult.

Care should be taken in using soak tanks for new potatoes. Serious losses often result from tuber breakdown. Research has shown that the trouble may be caused by rot-producing bacteria in the wash water being forced into the lenticels from prolonged immersion in deep vats.



Discharge end of washer showing washing rolls (backgound); water absorber rolls (front).

Washing potatoes into a flume—a low cost method of moving them from storage to washer conveyor.

Depth of water for new potatoes should not be over 5 feet, and vats should be cleared of one lot before the next is introduced. Water also should be changed at least once a day. In some areas the wash water is treated with chlorine. Whether this practice reduces decay losses has not yet been proven by research.

Fluming

Some of the newer installations feature water fluming to move potatoes from storage to conveyors that feed the washer. A large diameter hose directs a stream of low-pressure water at the base of piled potatoes, which are washed over a gently sloping floor into a flume and to the conveyor. This is a low-cost method of moving potatoes in the storage house and helps in washing them at the same time.

Drying after Washing

Whether washed potatoes should be dried before shipment or shipped wet or at least moist is still a debatable question.

In central Nebraska research with early potatoes washed but not dried or slightly dried showed that such potatoes can be delivered on the Chicago market in good condition, providing they are not subjected to adverse conditions during or after harvesting.

However, in Dade County, Florida, where much of the crop is dried with warm air after washing, shippers claim drying is effective in preventing decay in transit—especially in wet seasons when late blight is serious. In the Red River Valley of Minnesota and North Dakota, where a large part of the late-crop table stock is washed, drying apparently is not necessary to maintain quality during shipping, with the possible exception of potatoes affected by late blight.

To Wax or Not to Wax

The practice of applying emulsions of colored wax to red-skinned potatoes has been increasing since its introduction in 1949. Currently, a high percentage of the washed red potatoes are waxed. Non-colored wax emulsion also is used to a limited extent on white-skinned potatoes.

Research indicates that wax emul-

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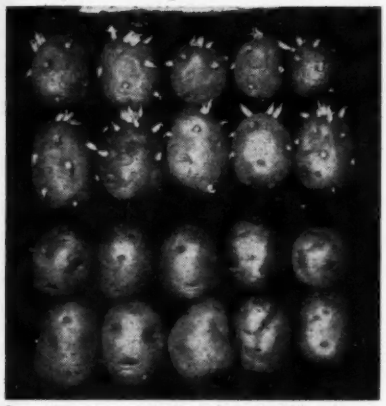
sions have little or no value in reducing weight loss, decay, or otherwise improving keeping quality of potatoes. Added brightness and color of red-skinned potatoes seem to be the only advantage. Some tests show waxing may actually increase decay where conditions were favorable for its development.

The Sprouting Problem

Excellent results in checking sprouting on late-crop potatoes held for a month at an average of 59° F. were obtained by use of a 2.1% emulsion of the methyl ester of alpha naphthalenacetic acid (MENA), applied at the rate of 1 gallon per 10,000 pounds of potatoes.

This treatment was effective on unsprouted potatoes and also satisfactory for de-sprouted tubers. The



Sprouting was curbed during month's storage at 59° by using MENA in wax emulsion. Check potatoes (top) were treated with a wax only.

treatment is sometimes more effective in wax emulsion than in water alone. Tests with Maine potatoes, however, indicate wax is not necessary as a MENA carrier.

SOURCES OF SUPPLY

Here are some of the manufacturers of products mentioned in accompanying article:

MENA: (Potato Sprout Inhibitor) Dow Chemical Co., Midland, Mich.; Millmaster Chemical Corp., 295 Madison Ave., N.Y. 17, N.Y.; Thompson Chemicals Corp., 3028 Locust St., St. Louis 3, Mo.

POTATO WASHERS AND WAXERS:

Aeroglide Corp., 510 Glenwood Ave., Raleigh 1, N.C.; John Bean Division, Lansing, Mich.; Food Machinery & Chemical Corp., Lakeland, Fla. (washers only); Lockwood Grader Corp., Gering, Nebr.; Paramount Mfg. Co., 1615 E. Main St., Stockton, Calif.; W. B. Skinner Co., East Grand Forks, Minn.; Tew Mfg. Corp., Fairport, N.Y.

WAX: S. C. Johnson & Sons, Inc., Racine, Wis.

1957 POTATO YEARBOOK

NOW available is the 1957 edition of American Potato Yearbook. Included in this 80-page encyclopedia is information and statistics on acreage, production, utilization; acreage guides; seed potato production and certification in the U. S. and Canada; U. S. standards, etc. The onion supplement has been expanded and revised. A special feature is the article, "The Story of Potato City (Pa.)." Copies are available from American Potato Yearbook, 8 Elm St., Westfield, N. J., at $2.00 each. A complete volume, 1950-57, sells for $9.00.

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TOMATO GROWERS — JUST PUBLISHED 1957 American Tomato Yearbook. Crammed with important facts. Send $2.00. Complete volume 1951-1957, $8.00. AMERICAN TOMATO YEARBOOK, Box 142-A, Westfield, New Jersey.

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CONTROLLING Potato Beetles

Some of the newer insecticides are giving excellent control

POTATO growers on the Eastern Shore of Virginia have been plagued by the increased resistance of the Colorado potato beetle to DDT. Extensive foliage damage has been observed in DDT treated potato fields, and in several cases even the freshly dug tubers have been damaged by feeding of the adults.

Tests in 1955 conclusively demonstrated the potato beetle's resistance to DDT, reports R. N. Hofmaster, associate entomologist at the Virginia Truck Experiment Station. In one experiment DDT gave a control of 78% as compared with 98% or higher with aldrin, diazinon, dieldrin, endrin, and heptachlor.

USDA photo

Colorado potato beetle. The overwintered adults normally aren't numerous enough to cause extensive damage but sometimes severely injure young tomato or potato plants. Later in the season large numbers of first generation beetles appear, and control measures are necessary.

In a test to control the summer brood beetles in June, 1956, newly emerged adults were collected from two areas, Tasley and Painter, and were caged on potato plants previously treated with DDT or dieldrin. Dieldrin gave a 100% kill for the adults collected from both localities, as compared with 51% and 83% control with DDT for beetles from Tasley and Painter, respectively. This variation in the effectiveness of DDT in different areas has also been observed for the potato flea beetle.

Because of the extremely dry weather in June, 1956, entomologists had an excellent opportunity to test the residual action of insecticides as foliage sprays. Last instar Colorado potato beetle larvae were caged on potato plants five days after the plants had been sprayed. Dieldrin with an 85% kill was far superior to DDT with only a 12% kill. No rain fell during the test period.

The Virginia station's recommendations for Colorado potato beetle control are as follows:

Spray: To be applied in 50 to 100 gallons of water per acre per application.
Dieldrin—1 pint of 15% emulsion or ½ pound of 50% wettable powder or equivalent.
Heptachlor—1 quart of emulsion (2 pounds per gallon) or 2 pounds of 25% wettable powder or equivalent.
Aldrin—1 quart of emulsion (2 pounds per gallon) or 2 pounds of 25% wettable powder or equivalent.
DUST: 1½% dieldrin or 5% heptachlor or 5% aldrin at 35 pounds per acre per application.

THE END

POTATOES FLOURISH

(*Continued from page* 11)

table stock or seed markets, until the shipper is ready to pack and ship them.

Harvesting and storing normally extends from early September to October 10. Processing, packing, and selling the crop begins in early September and is concluded around the end of May.

Mileposts in Marketing

During the past decade Red River Valley potato growers have given serious attention to the marketing of their table stock crop. Chronologically these mileposts have been reached:

1) Organization of the Red River Valley Potato Growers Association. This association owns the plant and facilities known as the Red River Valley Potato Research Center, which is leased to the USDA, a research and demonstration farm to facilitate the work of the Minnesota and North Dakota experiment stations and the USDA in potato research. The association maintains a full-time executive secretary and staff and publishes the biweekly *Valley Potato Grower*.

2) Activation of a grower-shipper guided, financed, and administered program in table stock potato marketing, which currently includes: a) regulation of cull potatoes; b) an assessment of 1 cent per hundredweight on all potatoes consigned to market to finance the promotion of "Red River Reds"; c) uniform, compulsory inspection of all potatoes going to market from the area; and d) permissive maturity and size control of table stock potatoes going to market early in the season. All of these steps were initiated and approved by growers through referendum and order procedure, with more than three-fourths' majority vote. THE END.

Send for Potato Storage Plans. Available from AMERICAN VEGETABLE GROWER, Willoughby, Ohio, for $1.50.

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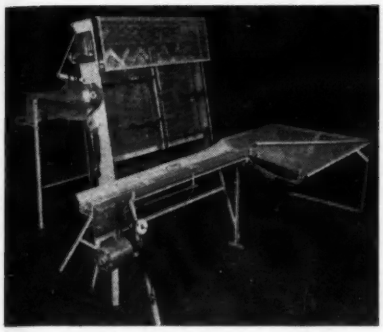
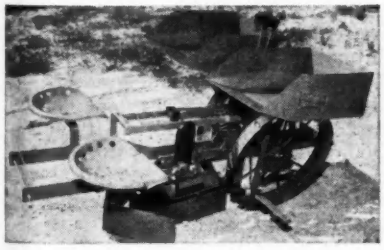


Potato Seed Cutter

Potato growers on Long Island are using to good advantage a new seed cutter. The machine cuts up to 60 bushels an hour and incorporates economy, efficiency, and durability. For the first time, seed can now be cut uniformly at high speed, including any size potato from two to eight cuts. The Dual Station Model illustrated above is precision-built of all-welded steel. Power is supplied by 1/3 h.p. electric motor. Kenneth Brown, president of K. G. Brown Manufacturing Co., Mattituck, N.Y., will be delighted to send you full details. Write him today.



Automatic Transplanting

Down in North Carolina, wise vegetable growers have found that a new transplanter saves money and time. The machine picks up sorted plants and places them firmly into the soil. After the planting cycle is completed, a "Meter-Rite" valve applies just the right amount of water to the plant. In the third step each plant is firmly packed in the soil. The machine, which I have seen in operation, is a mechanical marvel, and I feel you should know more about it. If you'll write Julian Powell, Powell Manufacturing Co., Wilson, N. C., he will send you full particulars. The new transplanter is amazingly low in cost.

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CHARLOTTETOWN

Harvesting potatoes from windrow on Kennedy farm. Man on harvester sorts trash from potatoes, which move on conveyor to canvas chute, where they drop gently into pallet boxes on truck.

Mechanical Harvesting with PALLET BOXES

Iowa's largest vegetable farm uses pallet boxes and fork lifts for streamlined potato harvesting

By JACK KENNEDY

Iowa's largest vegetable growing operation is that of S. Kennedy & Sons, at Clear Lake. Sam Kennedy started growing vegetables at Clear Lake 40 years ago, and sons Jack and Jim entered the business in 1949. Today the Kennedys own and farm 1300 acres.

Graduate engineers of Iowa State College, Jack and Jim put their technical know-how to work. Jim built a mechanical harvester, and the Kennedys began palletized harvesting in 1949. Today they have $50,000 invested in pallet boxes alone.

They normally grow 375 acres of potatoes, 200 acres of carrots, 150 acres of onions, and miscellaneous other crops. With storage capacity for more than 300 carloads of vegetables, they wash, grade, pack, and sell their vegetables from August through February. This year they installed an irrigation system for part of their acreage.—Ed.

WE have been harvesting potatoes mechanically with pallets since 1949. With a crew of only 18 men we can harvest and put into permanent storage over 12,000 bushels of potatoes a day.

Our harvester is a hybrid machine composed of a Noffsinger harvester frame, Chickering topping rolls, and Lockwood conveyor belts. We grow most of our vegetables on peat soil, and this machine works equally well on potatoes, onions, and carrots.

Our mechanical harvesting is tied directly in with the use of pallets in our storage. Our box pallets are approximately 4 feet square and hold slightly over a ton each. Our pallets cost $10 each, and we have more than 5000 of them.

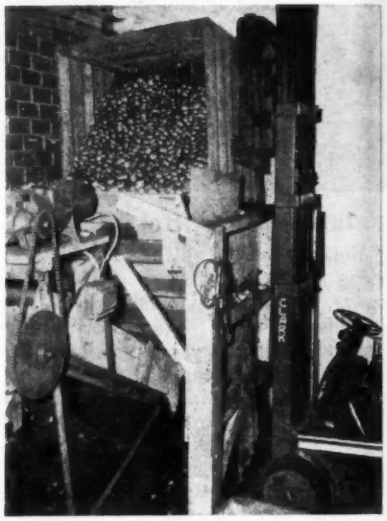
Our first step in harvesting potatoes is beating off the vines with a vine beater. Then we dig the potatoes with a 2-row digger and leave them in a compact windrow. Next we pick the potatoes up with our harvester. The topping rolls do a good job of separating the dirt and the vines from the potatoes. Usually two men work on the harvester, sorting out clods, vines, and trash. The potatoes are delivered off a conveyor into the pallets on the trucks. We have a man directing the potatoes into the pallets with a canvas chute so that they fall into the bottom as gently as possible.

We have found that 6-wheel drive trucks are the only trucks that will haul our crops from the soft peat ground under all conditions. We put six empty pallets on each truck at the warehouse. The empty pallets are taken to the field where they are filled from the harvesters while on the truck. The trucks are driven to the warehouse where the filled pallets are removed, the empties put on, and the process repeated. A 6-pallet truck holding 200 bushels can be loaded in 15 to 20 minutes.

On a short haul three trucks will keep each harvester going, as it takes less than five minutes to take off the six full pallets and put on the empties. One fork lift for each harvester will handle the pallets and stack the loaded pallets into permanent storage.

The main advantage of this system is the economy of manpower. Using 2 diggers, 2 harvesters, 6 trucks, 2 fork lifts, and 18 men, we can harvest and put into permanent storage 60 truckloads, or 12,000 bushels of potatoes a day.

Secondly, there is an improvement in the quality of the finished product. Once the potatoes are placed into the pallets in the field, there is no further movement of the potatoes to cause injury until they are taken from storage and dumped into the grader. The dumping process can be done quickly and gently with a fork lift with a 360-degree rotating head so that little or no injury occurs at this point. Fork lifts with rotating heads cost around $8000 each.



Clark fork lift truck with 360-degree rotating head dumps potatoes from pallet into hopper which feeds the washing and grading line.

The pallet system of handling potatoes is very flexible. Several varieties or grades can be stored separately with no extra labor. If any trouble arises from defective stock in storage, it is confined to individual pallets.

All in all, we are very pleased with our palletized system of harvesting and storing potatoes. THE END.

COMING NEXT MONTH

- **New Mechanical Devices Reduce Costs and Backaches**
- **Use of Chemicals and Their Effects on Growing and Storing of Potatoes**
- **Plastic Tubes Cut Heating Costs in Greenhouses**
- **Tomato Defoliation—Should I Try It?**
- **Vegetable Areas of America—Wisconsin**

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ETABLE GROWER

"Oh, for a field ..... without weeds, Pete!"

"Use **VAPAM**, Sam, and control the weeds!"

VAPAM® has been controlling weeds, nematodes, soil-borne fungi and insects on thousands of acres of ornamentals throughout the country. **NOW** — VAPAM has been approved for all food and fiber crops.

You will want to know about the new shallow-injection method Stauffer has developed for handling row crops at minimum cost. Treat with VAPAM **before** you plant and save weeding. Sprinkling can, hose proportioner or irrigation system can be used to thwart weeds, weed seeds, nematodes, soil-borne fungi and insects which damage plants and cut your profits.

One thing that makes VAPAM so popular with growers is that it is so simple to apply. It is safe to handle, requires no bulky "tarps" or cumbersome covers. Just apply VAPAM, soak in, wait the recommended time, cultivate and plant.

Write for detailed information on Stauffer VAPAM, or see your nearest Stauffer Dealer.

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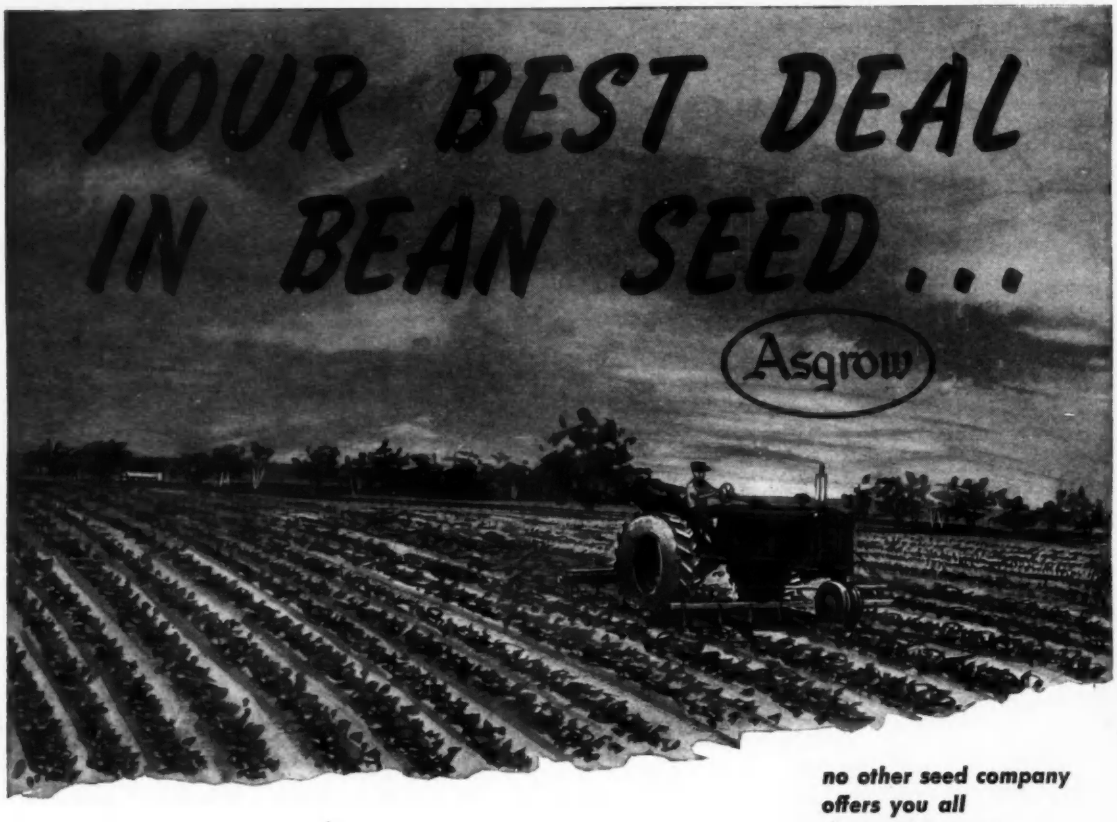
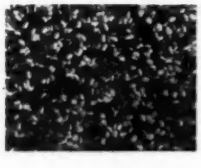


no other seed company offers you all these advantages



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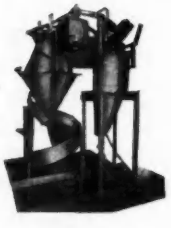

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